

# Storing and Reheating Lunches Brought From Home



*In 1993, a Bacillus cereus outbreak occurred at two jointly owned child-care centers in Virginia, sickening 12 children and 2 staff. The source of the outbreak was chicken fried rice, which was prepared in the morning, kept at room temperature, and not reheated before service.*

## Public Health Reasons

Many children who attend childcare bring packed lunches from home. Although the exact number is not known, about 50% of child-care facilities require parents to pack lunch for their children. Sometimes the foods that are provided by parents are potentially hazardous, so they must be handled safely before being served to the children.

Potentially hazardous foods are foods that are low acid, moist, and contain protein. Temperature control by refrigeration is one method for keeping potentially hazardous foods, such as meat, dairy, and some cut fruits and vegetables, safe to eat. Refrigerated foods should be kept below 41°F (5°C) to keep bacteria and other microorganisms from reproducing. When lunches brought from home are held at room temperature, the temperature of the food can increase throughout the day possibly reaching temperatures in excess of 62.6°F (17°C). Sometimes lunches are packed with ice packs to keep food cold; however, this may not be enough to ensure the temperature stays below 41°F (5°C). A study conducted in six child-care centers in Texas found that only 22 of 1631 (1.35%) potentially hazardous food items tested were in the acceptable temperature range, including 2.27% of lunches with one ice pack, 8.2% of lunches with multiple ice packs, and 0.9% of lunches kept in the refrigerator. These results may be due to the nature of the lunch sacks, the amount of time at room temperature before refrigeration, or the internal temperature of the refrigerator.

Some lunch foods that are brought from home need to be reheated before service—this must also be done safely. Food that is kept at an unsafe temperature after reheating is an ideal medium for the growth of bacteria because it contains nutrients, water, and has an ideal pH environment. Bacteria can grow and multiply rapidly in the food that is held in a temperature range between 41°F (5°C) and 135°F (57°C), which is called the “temperature danger zone.” If the reheated food is kept in the danger zone for over 4 hours, the number of pathogenic bacteria may reach the infectious dose or produce toxins which can cause a foodborne illness once it is consumed. It is important to note that as long as the lunch is served immediately after reheating, it is safe to reheat the lunch to a comfortable temperature for eating. “Immediately” is not strictly defined as a time limit by the Food Code. However, it is viewed as serving the food directly to the consumer without any steps between heating and serving.

Child-care workers must also be cautious of the food's temperature because consuming food that is too hot may burn a child. In addition to burning the mouth or tongue on hot foods or liquids, direct injury to the airway and lungs can occur from consumption of hot liquids. As well, steam inhalation may result in significant airway burns. Cups of liquid can be particularly dangerous because of the discrepancy in temperature that may exist between the outside of the cup and the liquid inside. Bottles must never be reheated in the microwave. (See "Handling and Preparing Baby Food, Breast Milk, and Infant Formula" fact sheet for proper heating of bottles). Sando et al. reported an infant sustained second degree oropharyngeal burns from formula that had been heated in a microwave and ingested after the outside of the plastic bottle was judged to be cool. Liquid or food heated in the microwave should be pre-tested directly rather than relying on the temperature of the container.

## Practices

### Storing Lunches Brought From Home

- Tell parents what students are allowed to bring in their lunches and how lunches should be packed.
- Label all children's lunch packs with their name before storing.
- In order to keep foods at 41°F (5°C) or colder, it is recommended to keep the refrigerator set at 39°F (3.8°C).

*If no refrigerator is available at the child-care facility, child-care providers must tell parents to pack foods that do not require refrigeration.*

- Keep the following foods below 41°F (5°C):
  - meat
  - poultry
  - fish
  - eggs
  - milk
  - soft cheese
  - yogurt
  - peeled or cut fruits and vegetables
  - fruit juice containers that have been opened
  - sandwiches
  - pasta salad
- Food such as bread, crackers, cereal, peanut butter, whole uncut fruit and vegetables, unopened canned fruit, dried fruit, unopened juice boxes, hard cheese, nuts and seeds, and unopened cans of tuna, meats, or poultry can be kept safe without refrigeration.
- Make sure that individual food and drink items brought from home are in sealed containers, such as screw-top drink bottles, plastic containers, plastic bags, or unopened packages.
- It is best to keep sealed food items in a thermally insulated lunch bag.
- If a lunch container is leaking (such as a container of soup from a lunch bag), remove it and clean the refrigerator and any lunch bags or containers that were soiled. Place the leaking item in a leak-proof container.

### Reheating Lunches Brought From Home

- For warming baby formula or breast milk and heating baby food, see the “Handling and Preparing Baby Food, Breast Milk, and Infant Formula” fact sheet.
- Use a microwave, oven, or stovetop to reheat lunches.

*Do not reheat lunches in a slow cooker because the lunch cannot be reheated rapidly and may stay in the “temperature danger zone” between 41°F (5°C) and 135°F (57°C), which may result in the growth of bacteria.*

- Reheat lunches to a comfortable temperature for children to eat. Test the food’s temperature before serving it to a child:
  - Use a clean utensil to take a sample from the reheated food to make sure the food is not too hot or too cold for the child to eat.
  - Do *not* put the used utensil back in to the reheated food because the saliva on the used utensil may introduce bacteria into the food.
- Allow the reheated food to cool down, if it is too hot for serving.
- Test the food again to assure that it is safe to serve to the child.

### Reheating on a stovetop

- Use a clean pot for reheating lunches.
- Use a clean utensil or single-use gloves to transport the food item from the container into the cookware.
- If the lunch is packed in a plastic bag or wrapped with aluminum foil, unwrap the food item and avoid touching it with bare hands by wearing single-use gloves or using a utensil.
- Reheat lunches in a preheated pot on the stovetop.
- Serve the reheated lunch on a clean plate or in a clean bowl immediately after reheating.
- Be sure to test the temperature of the food before giving it to the child, so she is not burned.

### Reheating in an oven

- Preheat the oven to 325°F (163°C).
- Use clean, oven safe cookware (check the label on the bottom of the cookware), such as a baking pan, for reheating lunches.
- Use a clean utensil or single-use gloves to transport the food item from the container into the preheated pot.
- If the lunch is packed in a plastic bag or wrapped with aluminum foil, unwrap the food item and avoid touching it with bare hands by wearing single-use gloves or using a utensil.
- Place the oven safe cookware into the preheated oven.
- Stir the food to make sure it is evenly heated before serving.

- Serve the reheated lunch on a clean plate or in a clean bowl immediately after reheating.
- Be sure to test the temperature of the food before giving it to the child, so she is not burned.

### Reheating in a Microwave Oven

- Reheat lunches just before serving.
- Before reheating, check the inside of the microwave to make sure there are no spills, spatters, or heavy soil.
- Clean the microwave if there are spills, spatters, or heavy soil.
  - Unplug the microwave before cleaning.
  - To remove spatters and spills, dampen a soft clean cloth or a clean paper towel with warm water and wipe out the spatter or spills.
  - To remove heavy soil, use baking soda or dishwashing liquid on a soft clean cloth or a clean paper towel to wipe out the heavy soil.
  - Steel wool, scouring pads, abrasive cleaners, or oven cleaners *cannot* be used to clean the microwave.
  - If the microwave has a removable turntable, remove it and clean it in the dishwasher, if dishwasher safe, or using the three-compartment sink method (see “Cleaning and Sanitizing Food-Contact Surfaces” fact sheet).
- Before reheating, cover the food loosely with a lid or microwave-safe plastic wrap to help ensure even heating. Allow steam to vent.
  - If using a lid, make sure to vent the lid or loosely cover the food with the lid.
  - If using a microwave-safe plastic wrap, loosely wrap the food to avoid the plastic wrap touching the food.
- If there is no removable turntable in the microwave, rotate or stir the food during microwaving time to ensure the food is heated evenly.
- Serve the reheated lunch immediately after reheating.
- Be sure to test the temperature of the food before giving it to the child, so she is not burned.

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**Published:** March 31, 2013      **Revised:** March 1, 2013

This material is based upon work supported by the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture, under Agreement No. 2008-51110-04335, the National Integrated Food Safety Initiative of the Cooperative State Research, Education, and Extension Competitive Grants Program. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

